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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/772,699	02/05/2004	Leroy M. Edwards	8540G-000156	5123
27572 7590 09/06/2007 HARNESS, DICKEY & PIERCE, P.L.C. P.O. BOX 828 BLOOMFIELD HILLS, MI 48303			EXAMINER WALKER, KEITH D	
			ART UNIT 1745	PAPER NUMBER
			MAIL DATE 09/06/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/772,699	Applicant(s) EDWARDS ET AL.	
	Examiner Keith Walker	Art Unit 1745	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 June 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

Claims 1-20 are pending examination as discussed below.

Claim Interpretation

Concerning the language “adapted to” or “capable of”, it is held that the recitation that an element is “adapted to” or “capable of” performing a function is not a positive limitation but only requires the ability to so perform. It does not constitute a limitation in any patentable sense (MPEP 2111.04).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 1, 2, 4-9, 11-16, 19 & 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent 6,277,509 (Wheeler) in view of US 2004/0062964 (Matsuoka) and US Publication 2003/0064266 (Ogami).

Wheeler teaches a fuel cell system with a hydrogen flow path, a coolant flow path and an enclosure around part of the hydrogen flow path and an enclosure around the coolant reservoir (Fig. 1; 6:20-60, 7:10-25, 13:40-45).

Wheeler is silent to the coolant reservoir having a hydrogen vent.

Matsuoka teaches a fuel cell system with a coolant reservoir having a hydrogen vent in the wall of the enclosure. The vent separates the fuel cell exhaust gases from the liquid water, allowing the unnecessary gasses to pass through to the atmosphere but keeping the liquid coolant inside the reservoir. An enclosure surrounds the entire fuel cell system (Figs. 1-5A; [0030,0031,0034,0037,0040]). This second enclosure houses the entire system, allowing for easy application integration. While the concentration of the hydrogen within the enclosure is not expressly taught, reducing the amount of unnecessary gasses like hydrogen is taught and it would be obvious to one skilled in the art to rid the enclosure of as much hydrogen gas as possible with a best case being zero percent. The motivation to reduce the hydrogen gas in the container is for both safety and increased performance. A build up hydrogen is a concern for a possible explosion and the more air that enters the cooling water, the water distribution becomes non-uniform and therefore the performance of the fuel cell deteriorates (Ogami [0023-0026]).

Therefore it would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to modify the fuel cell system of Wheeler with the hydrogen vent of Matsuoka to increase the safety of the system by disposing of a build up of hydrogen, leading to a possible explosion and to increase the performance of the fuel cell by improving the cooling effect of the coolant by disposing of the gasses in the coolant, allowing a more uniform distribution of the liquid coolant.

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2. Claims 10 & 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent 6,277,509 (Wheeler) in view of US 2004/0062964 (Matsuoka) and US Publication 2003/0064266 (Ogami) as applied to claims 1 & 16 respectively and further in view of US Patent 4,168,349 (Buzzelli).

The teachings of Wheeler, Matsuoka and Ogami as discussed above are incorporated herein.

Wheeler, Matsuoka and Ogami are silent to the vent acting like a flame barrier.

Buzzelli teaches a hydrogen vent that acts as a flame and explosion barrier (2:55-65). Using a hydrogen vent that also blocks flames increases the safety of the fuel cell system.

Therefore it would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to modify the vent of Matsuoka with the flame barrier vent of Buzzelli to improve the safety of the fuel cell device.

3. Claims 3 & 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent 6,277,509 (Wheeler) in view of US 2004/0062964 (Matsuoka) and US Publication 2003/0064266 (Ogami) and US Patent 4,168,349 (Buzzelli) as applied to claims 2 & 17 respectively and further in view of US Publication 2004/0151962 (Adams).

The teachings of Wheeler, Matsuoka, Ogami and Buzzelli as discussed above are incorporated herein.

Wheeler, Matsuoka, Ogami and Buzzelli are silent to the vent being made of plastic.

Adams teaches a gas permeable and liquid impermeable vent made from plastic (Fig. 6, [0056]). Adams discloses different materials available to construct vents.

Therefore it would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to use the teachings of Adams to learn of the materials available for gas permeable and liquid impermeable vents.

Response to Arguments

Applicant's arguments filed 6/11/07 have been fully considered but they are not persuasive.

Applicant argues Matsuoka does not teach a venting of an enclosure encompassing at least a part of the hydrogen flow path and coolant flow path. Applicant further states the valve taught by Matsuoka provides only discrete venting to a limited area of the system and does not provide broader based venting for the system.

Matsuoka teaches venting a reservoir that reclaims and recycles the anode exhaust and venting the enclosure. The Wheeler fuel cell system also uses an anode recycle loop and includes a coolant reservoir for supplying the reformer with water and keeping the fuel cell at proper temperature. Ogami teaches when recycling the anode exhaust, the gas that becomes incorporated into the water needs to be vented. Therefore as discussed above, the combination of the references teaches venting hydrogen gas from a cooling tank and an enclosure.

In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections

are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Keith Walker whose telephone number is 571-272-3458. The examiner can normally be reached on Mon. - Fri. 8am - 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

K. Walker

MARK RUTHKOSKY
PRIMARY EXAMINER

Mark Ruthkosky 8/29/07